

Serial No.

(b) the polynucleotide sequences which hybridize under stringent conditions to the complementary sequences of (a); and

(c) polynucleotide sequences which are degenerate to polynucleotide sequences of (a) or (b).

Please amend Claim 4 as follows:

4. (Amended) A polynucleotide according to claim 1, lacking the native leader sequences or any of the 5' or 3' untranslated regions of the polynucleotide.

Please amend Claim 6 as follows:

6. (Amended) A polynucleotide according to claim 1, which encodes codeinone reductase enzyme of *Papaver somniferum*.

Please amend Claim 7 as follows:

7. (Amended) A polynucleotide according to claim 1, which is a synthetic polynucleotide comprising one or more codons preferred for expression in plant cells.

Please amend Claim 10 as follows:

10. (Amended) An isolated and purified polynucleotide having a sequence which is complementary to all or part of the sequence of a polynucleotide according to claim 1.

Please amend Claim 11 as follows:

11. (Amended) A recombinant DNA construct comprising the polynucleotide according to claim 1.

Please amend Claim 13 as follows:

13. (Amended) A DNA construct according to claim 11 capable of directing prokaryotic or eukaryotic expression of the polynucleotide encoding a codeinone reductase enzyme.

Please amend Claim 14 as follows:

14. (Amended) A DNA construct according to claim 11, comprising a promoter suitable to control the expression of the polynucleotide.

Please amend Claim 20 as follows:

20. (Amended) An isolated and purified codeinone reductase enzyme, being a product of prokaryotic or eukaryotic expression of the polynucleotide of claim 1.

Serial No.

Please amend Claim 28 as follows:

28. (Amended) An enzyme according to claim 20, which is a variant incorporating amino acid deletions, substitutions, additions or combinations thereof, wherein the variant retains one or more of the biological properties of codeinone reductase enzyme.

Please amend Claim 29 as follows:

29. (Amended) A cell transformed or transfected with a polynucleotide according to claim 1.

Please amend Claim 36 as follows:

36. (Amended) A callus transformed or transfected with a polynucleotide according to claim 1.

Please amend Claim 37 as follows:

37. (Amended) A plant transformed or transfected with a polynucleotide according to claim 1, wherein the plant exhibits altered expression of the codeinone reductase enzyme.

Please amend Claim 40 as follows:

40. (Amended) A plant according to claim 37, which is an alkaloid poppy plant.

Please amend Claim 42 as follows:

42. (Amended) A plant according to claim 40, wherein the alkaloid poppy plant is *Papaver somniferum*.

Please amend Claim 43 as follows:

43. (Amended) A method for preparing plants which overexpress a codeinone reductase enzyme, comprising transfecting or transforming a plant cell, a plant part or a plant, with the polynucleotide according to claim 1.

Please amend Claim 49 as follows:

49. (Amended) A stand of stably reproducing alkaloid poppies transformed or transfected with a polynucleotide according to claim 1 having altered expression of the codeinone reductase enzyme.

Please amend Claim 50 as follows:

Serial No.

50. (Amended) A stand of stably reproducing alkaloid poppies transformed or transfected with a polynucleotide according to claim 1 having a higher or different alkaloid content when compared to a plant which has not been so transformed or transfected.

Please amend Claim 51 as follows:

51. (Amended) A stand of stably reproducing alkaloid poppies according to claim 49 wherein the alkaloid poppy is *Papaver somniferum*.

Please amend Claim 52 as follows:

52. (Amended) Straw of stably reproducing poppies according to claim 49 having a higher or different alkaloid content when compared to the straw obtained from an alkaloid poppy which has not been transformed or transfected.

Please amend Claim 54 as follows:

54. (Amended) An alkaloid when isolated from the straw according to claim 49.

Please amend Claim 56 as follows:

56. (Amended) A method for the production of poppy plant alkaloids, comprising the steps of;
- a) harvesting capsules of an alkaloid poppy plant transformed or transfected with a polynucleotide according to claim 1, to produce a straw where the poppy plant is such a plant that the straw has a higher or different alkaloid content when compared to the straw obtained from a poppy plant which has not been transformed or transfected, and
  - b) chemically extracting the alkaloids from the straw.

Please amend Claim 57 as follows:

57. (Amended) A method for the production of poppy alkaloids, comprising the steps of ;
- a) collecting and drying the latex of the immature capsules of an alkaloid poppy plant transformed or transfected with a polynucleotide according to claim 1, to produce opium wherein the poppy plant is such a plant that the opium has a higher or different alkaloid content when compared to the opium obtained from a poppy plant which has not been transformed or transfected, and
  - b) chemically extracting the alkaloids from the opium.

Please amend Claim 58 as follows:

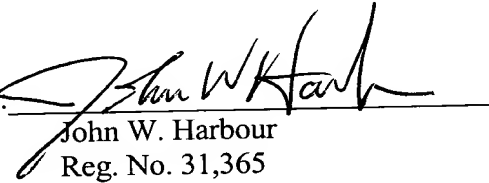
58. (Amended) A method according to claim 56 wherein the alkaloid is selected from the group consisting of morphine, codeine, oripavine and thebaine.

Serial No.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page(s) is/are captioned "Version with markings to show changes made".

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

By:   
John W. Harbour  
Reg. No. 31,365

Johnson & Johnson  
One Johnson & Johnson Plaza  
New Brunswick, NJ 08933-7003  
(732) 524-2169  
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